

CLAIMS

I claim:

1. A metal working machine comprising:

a frame member adapted for resting upon a horizontal support surface, said frame member having at least two vertical stanchions, said frame member having a horizontal support member extending between said vertical stanchions, said horizontal support member being positioned adjacent a top end of each of said vertical stanchions;

a arm member pivotally coupled to said frame member;

a hydraulic cylinder having a piston selectively extendable from said hydraulic cylinder, said hydraulic cylinder being operationally coupled to said frame member, said piston being operationally coupled to said arm member whereby extension of said piston from said hydraulic cylinder pivotally moves said a first end of arm member away from said frame member.

2. The machine of claim 1, further comprising a hydraulic reservoir operationally coupled to said hydraulic cylinder for providing additional hydraulic force.

3. The machine of claim 1, further comprising a control assembly operationally coupled to said hydraulic cylinder for selectively actuating said hydraulic cylinder whereby said piston is extended.

4. The machine of claim 1, wherein said arm member further comprises a shear blade for cutting metal when said piston is retracted into said hydraulic cylinder.

5. The machine of claim 1, further comprising:
a hydraulic reservoir operationally coupled to said hydraulic cylinder for providing additional hydraulic force;

a control assembly operationally coupled to said hydraulic cylinder for selectively actuating said hydraulic cylinder whereby said piston is extended; and

a shear blade operationally coupled to a lower portion of said arm member for cutting metal when said piston is retracted into said hydraulic cylinder.

6. The machine of claim 5, further comprising:
a punch assembly operationally coupled to a second end of said arm member;
a punch mating assembly operationally coupled to said frame member, said punch mating assembly being aligned with said punch assembly;
said punch assembly engaging said punch mating assembly when said first end of said arm member is moved away from said frame assembly by said piston.

7. The machine of claim 6, wherein said punch assembly engages said punch mating assembly with eighty tons of force.

8. The machine of claim 5, further comprising:

 said arm member having a pivot portion pivotally coupled to said frame member, said arm member having a first extent extending outwardly from said pivot portion, said first extent terminating at said first end;

 said arm member having a second extent extending outwardly from said pivot portion opposite said first extent, said second extent ending at said second end;

 said first extent being substantially longer than said second extent to improve leverage of said piston member for applying downwardly directed force at said second end.

9. The machine of claim 8, wherein said first extent having a length at least three times as long as a length of said second extent.

10. The machine of claim 8, further comprising:

 a ram member operationally coupled to said arm member, said ram member extending downwardly from said arm member, said ram member being for transferring a force from said arm member to a piece of metal being worked;

 a second horizontal support member operationally coupled between said two vertical stanchions, said second horizontal support member being positionable below said horizontal support member for supporting the piece of metal being worked.

11. The machine of claim 10, wherein said ram member being positioned at a medial portion of said first extent of said arm member.

12. The machine of claim 10, further comprising:

a first plurality of apertures extending through a first one of said two vertical stanchions, said first plurality being dispersed in a linear array;

a second plurality of apertures extending through a second one of said two vertical stanchions, said second plurality being dispersed in a linear array;

a pair of coupling members for operationally coupled said second horizontal support member to said two vertical stanchions, said pair of coupling members being positionable through a selected pairing of said one of said first plurality of apertures and one of said second plurality of apertures whereby a height between said ram member a said second horizontal support is adjustable.

13. The machine of claim 10, wherein said ram member develops fifty tons of force.

14. The machine of claim 5, further comprising:

said arm member having a pivot portion pivotally coupled to said frame member, said arm member having a first extent extending outwardly from said pivot portion, said first extent terminating at said first end;

said arm member having a second extent extending outwardly from said pivot portion opposite said first extent, said second extent ending at said second end;

said first extent being substantially longer than said second extent to improve leverage of said piston member for applying downwardly directed force at said second end;

said first extent having a length at least three times as long as a length of said second extent;

a ram member operationally coupled to said arm member, said ram member extending downwardly from said arm member, said ram member being for transferring a force from said arm member to a piece of metal being worked;

a second horizontal support member operationally coupled between said two vertical stanchions, said second horizontal support member being positionable below said horizontal support member for supporting the piece of metal being worked;

said ram member being positioned at a medial portion of said first extent of said arm member;

a first plurality of apertures extending through a first one of said two vertical stanchions, said first plurality being dispersed in a linear array;

a second plurality of apertures extending through a second one of said two vertical stanchions, said second plurality being dispersed in a linear array;

a pair of coupling members for operationally coupled said second horizontal support member to said two vertical stanchions, said pair of coupling members being positionable through a selected pairing of said one of said first plurality of apertures and one of said second plurality of apertures whereby a height between said ram member and said second horizontal support is adjustable; and

wherein said ram member develops fifty tons of force.

15. A metal working machine comprising:

a frame member adapted for resting upon a horizontal support surface, said frame member having at least two vertical stanchions, said frame member having a horizontal support member extending between said vertical stanchions, said horizontal support member being positioned adjacent a top end of each of said vertical stanchions;

a arm member pivotally coupled to said frame member;

a hydraulic cylinder having a piston selectively extendable from said hydraulic cylinder, said hydraulic cylinder being operationally coupled to said frame member, said piston being operationally coupled to said arm member whereby extension of said piston from said hydraulic cylinder pivotally moves said a first end of arm member away from said frame member;

a hydraulic reservoir operationally coupled to said hydraulic cylinder for providing additional hydraulic force;

a control assembly operationally coupled to said hydraulic cylinder for selectively actuating said hydraulic cylinder whereby said piston is extended; and

a shear blade operationally coupled to a lower portion of said arm member for cutting metal when said piston is retracted into said hydraulic cylinder;

a punch assembly operationally coupled to a second end of said arm member;

a punch mating assembly operationally coupled to said frame member, said punch mating assembly being aligned with said punch assembly;

said punch assembly engaging said punch mating assembly when said first end of said arm member is moved away from said frame assembly by said piston;

said arm member having a pivot portion pivotally coupled to said frame member, said arm member having a first extent extending outwardly from said pivot portion, said first extent terminating at said first end;

 said arm member having a second extent extending outwardly from said pivot portion opposite said first extent, said second extent ending at said second end;

 said first extent being substantially longer than said second extent to improve leverage of said piston member for applying downwardly directed force at said second end;

 a ram member operationally coupled to said arm member, said ram member extending downwardly from said arm member, said ram member being for transferring a force from said arm member to a piece of metal being worked; and

 a second horizontal support member operationally coupled between said two vertical stanchions, said second horizontal support member being positionable below said horizontal support member for supporting the piece of metal being worked.

16. The machine of claim 15, wherein said first extent having a length at least three times as long as a length of said second extent.

17. The machine of claim 16, wherein said ram member being positioned at a medial portion of said first extent of said arm member.

18. The machine of claim 17, wherein said punch assembly engages said punch mating assembly with eighty tons of force and said ram member develops fifty tons of force.

19. The machine of claim 15, further comprising:

a first plurality of apertures extending through a first one of said two vertical stanchions, said first plurality being dispersed in a linear array;

a second plurality of apertures extending through a second one of said two vertical stanchions, said second plurality being dispersed in a linear array;

a pair of coupling members for operationally coupled said second horizontal support member to said two vertical stanchions, said pair of coupling members being positionable through a selected pairing of said one of said first plurality of apertures and one of said second plurality of apertures whereby a height between said ram member a said second horizontal support is adjustable.